



The DS-2 is a high-power, arrayable mid-bass loudspeaker designed to supplement Meyer Sound reinforcement systems in the 50-160 Hz range. The system utilizes two proprietary 15-inch cone drivers in a folded horn enclosure braced with steel vertical reinforcing rods. The horn features a hyperbolic flare for maximum energy transfer with minimum frequency response ripple. Its balanced compression chamber presents a symmetrical load to the drivers, providing very high power handling and low distortion.

The DS-2 is designed to operate as a system with the D-2 Control Electronics Unit. The D-2 comprises an electronic crossover, Meyer Sound exclusive SpeakerSense™ driver protection circuitry, and amplitude and phase response correction circuitry optimized for the DS-2. A switch-defeatable crossover and line-level output to drive subwoofer systems is provided, with a preset-panel sub polarity switch to facilitate aligning the subwoofers with the main system.

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**Amplifier  
Requirements**

The DS-2 requires a professional-quality power amplifier capable of delivering 600-1100 watts continuously into 4 ohms, with a maximum output voltage swing of 140 Vpk and voltage gain of 14 dB (minimum) to 32 dB (maximum).

The use of an amplifier rated significantly less than 600 watts will reduce the system headroom. Conversely, using an amplifier with greater than 140 Vpk output swing may endanger the loudspeaker, and **is not recommended**.

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**Connections**

The connection terminals of each 15-inch cone driver appear separately on a single Cannon P-type 4-pin connector (5-pin in Europe) located on the rear of the DS-2 cabinet. The pin assignments for this connector are:

Pin 1—Driver 2 common  
Pin 2—Driver 1 common  
Pin 3—Driver 1 hot  
Pin 4—Driver 2 hot  
Pin 5—No connection (Europe only)

These connections must be brought back separately to the power amplifier and wired in parallel at its output. The minimum wire size for connections between the DS-2 and the power amplifier is 14 gauge (12 gauge for runs greater than 100 feet).

**Note:** If you are using standard Meyer Sound loudspeaker cables and adapters, simply connect the female end of the loudspeaker cable to the DS-2, the male end of the cable to the pigtail adapter P connector, and the dual banana connector of the adapter to the amplifier output.

*If you are constructing your own cables, be certain to verify that the DS-2 drivers are wired in correct polarity at the amplifier output. If the drivers are out of polarity and the system is driven to high amplifier power levels, the components will be destroyed.*

For connections between the D-2 Control Electronics Unit and the power amplifier, refer to the **D-2 Operating Instructions**.

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**Verifying System  
Polarity**

All Meyer Sound loudspeaker systems are thoroughly tested in all stages of manufacture and the correct polarity of individual cabinets is assured. Polarity reversals may occur at many other points in the system, however. A single DS-2 cabinet or component that is out of polarity with the rest of the system will cause cancellations, resulting in a noticeable decrease in SPL and the possibility of component damage.

In part because of the signal processing circuitry in the D-2 Control Electronics Unit, "phase-popper" speaker checkers cannot reliably test for correct polarity of the DS-2. It is a simple matter to verify individual cabinets, and test for correct polarity between cabinets, using a spectrum analyzer ( $\frac{1}{3}$ rd octave minimum frequency resolution) with a pink noise source.

**Note.** A polarity reversal within the DS-2 system can result in severe damage to the drivers. It is strongly recommended that polarity testing be done at low levels and with the appropriate equipment.

**1. Single cabinets**

- Disconnect one of the two DS-2 drivers at the amplifier output.
- Set the D-2 Level control at minimum and connect the pink noise source to its input, then advance the D-2 Level control to a comfortable level.

- Reconnect the second DS-2 driver at the amplifier output. The noise volume level should double.
- If the noise level decreases, the second driver is out of polarity with the first.

**2. Multiple cabinet arrays** – Each cabinet should first be tested individually.

- Connect one DS-2, set the D-2 Level control at minimum and connect the pink noise source to its input, then advance the D-2 Level control.
- Position the measurement microphone on the axis between two adjacent DS-2 cabinets, and about 6 feet distant. Note the frequency response and overall level.
- Leaving the first cabinet connected, connect the adjacent one and observe the analyzer display. The entire curve should rise in level by approximately 6 dB, indicating correct addition between the loudspeakers. A polarity reversal between the loudspeakers will show up as severe cancellations.
- Similarly, connect the rest of the cabinets in the array one by one, looking for correct addition as each loudspeaker is connected. (It will be necessary to reposition the microphone.)

**3. Crossover to main system** – All cabinets in the DS-2 array and main system should first be tested, then placed in the position in which they will be operated.

- With the system master level control at minimum, input pink noise to the system, then set a comfortable measuring level. Position the microphone on the axis of the system, 6 feet or more distant.
- Note the system response in the mid-bass region. A cancellation of approximately 6 dB centered at 160 Hz indicates a polarity reversal between the DS-2's and the main system.
- If in doubt, reverse the polarity of the DS-2's and observe the response.

**4. Crossover to subwoofers (optional)** – If you elect to use subwoofers to reproduce the 30-60 Hz octave, they must first be tested individually for correct polarity (refer to the Operating Instructions for the subwoofer system).

It is common to place subwoofers at some distance from the main system (on the ground below a flown array, for

example). In part because of the long wavelengths involved, propagation delay can cause a cancellation at the crossover to the main system. For this reason, it is always necessary to check the subwoofer crossover once the system has been installed in the position in which it will be operated.

- Connect the subwoofer system input to the D-2 Subwoofer output, and set the D-2 Mode switch to the "DS-2 & Sub" position (refer to the **D-2 Operating Instructions**).
- With the system master level control at minimum, input pink noise to the system, then set a comfortable measuring level. Position the measurement microphone on the axis between the subwoofers and the system, 6 feet or more distant.
- Note the system response in the bass region. A cancellation of approximately 6 dB centered at 50 Hz indicates a polarity reversal between the subwoofers and the main system.
- If in doubt, reverse the subwoofer polarity using the D-2 Sub Polarity switch and observe the response.

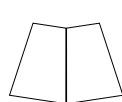
## Placement and Arraying

The DS-2 is designed to perform extremely well in arrays with Meyer Sound MSL-3A's or MSL-10A's, and maintains a well-defined 1/R image at the rear of the cabinet. Its rigging points are strengthened with steel reinforcing rods running the length of the cabinet from top to bottom, and a single DS-2 will support two MSL-3A or DS-2 cabinets suspended below it.

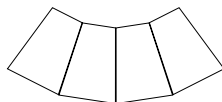
The diagrams below illustrate some examples of DS-2 arrays. Where units are arrayed in a single block, they should always be placed with adjacent cabinet faces

flush to one another. Spreading the cabinets does not substantially alter the horizontal coverage of the array because of the long wavelengths involved.

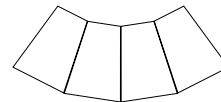
Until the array reaches large dimensions (six or more tight-packed cabinets), horizontal coverage remains a constant  $120^\circ (\pm 60^\circ)$  as units are added to the array (acoustic power increases substantially with each additional cabinet). In arrays with MSL-3A's, large array size may be achieved by interleaving DS-2's and MSL-3A's as shown in Diagram C.



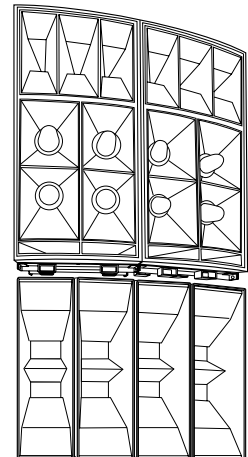
**A. Minimum configuration**



**B. Block of four units**



**C. Interleaved with MSL-3A cabinets**



**D. Arrayed with MSL-10A cabinets**

**Specifications**

**Acoustical – DS-2 / D-2 System<sup>1</sup>**

Frequency response <sup>2</sup>	50-160 Hz $\pm$ 3 dB
Maximum SPL <sup>3</sup>	
Continuous	136 dB
Peak	148 dB
Sensitivity <sup>4</sup>	112 dB
Coverage (-6dB points)	
Horizontal	120 degrees
Vertical	120 degrees

**DS-2 Loudspeaker**

Transducers	(2) MS-15 15-inch cone driver
Impedance	
Nominal	4 ohms
Minimum	3.5 ohms real part, 0 ohms imaginary part, at 80 Hz
Maximum Safe Amplifier Swing	140 Vpk
Enclosure	Folded horn, multi-ply Finnish birch
Finish	Black textured or charcoal-grey carpet (optional)
Physical Dimensions	21 $\frac{1}{4}$ " W x 56 $\frac{3}{4}$ " H x 30" D
Weight	250 lbs (113.6 kg)
Protective Grill	Expanded metal screen frame, vinyl damped, charcoal-grey foam covering
Connector	Cannon EP-4 male, EP-5 male (Europe only)
Rigging	Aircraft pan fittings

**Note 1:**

Acoustical specifications are for the minimum configuration of two DS-2 cabinets, and are measured on axis at 2 meters from 1/R image (located at cabinet rear).

**Note 2:**

Half-space conditions, pink noise input, in third-octave bands.

**Note 3:**

Loudspeakers driven with pink noise (peak-to-RMS ratio  $\approx$  12 dB), with amplifier rated at 600 W/channel at 4 ohms. The DS-2 will accommodate amplifiers capable of peak output levels up to  $\pm$ 140 Vpk.

**Note 4:**

Loudspeakers driven at 2 vrms each (1 watt @ 4 ohms each).